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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,919	08/06/2008	Tatsuhiko Nagata	1958.1004	1652

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EXAMINER	
SANEI, MONA M	

ART UNIT	PAPER NUMBER
2882	

MAIL DATE	DELIVERY MODE
05/12/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/585,919	NAGATA, TATSUHIKO	
	Examiner	Art Unit	
	MONA M. SANEI	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 July 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed November 2, 2006, fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language (reference AI under 'Foreign Patent Documents'). Therefore, those references not in compliance have not been considered and have been lined through on the PTO-1449 form.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

- 20B-1 to 20B-12 (fig. 3)
- C-C (fig. 6A)
- 40B (fig. 7)

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not

accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 5 and 12-16 are objected to because of the following informalities:

- In claim 5, last line, "leaves has" should read - -leaves have- -.
- In claim 12, line 2, "a thickness direction" should read - -the thickness direction- -.
- Claims 13-16 are objected to by virtue of their dependencies.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- In claim 1, line 5, "the aperture leaf" lacks proper antecedent basis insofar as it is unclear which of the plurality of aperture leaves is being referenced.
- In claim 1, line 6, the phrase "can be" is indefinite insofar as it is unclear whether the limitation following the phrase is or is not part of the claimed invention.
- In claim 1, line 6, "the aperture leaf" lacks proper antecedent basis insofar as it is unclear which of the plurality of aperture leaves is being referenced.
- In claim 6, line 6, the term "can" is indefinite insofar as it is unclear whether the limitation following the term is or is not part of the claimed invention.

- In claim 9, lines 2-3, "the metal wires" lacks proper antecedent basis.
- In claim 10, line 4, the term "can" is indefinite insofar as it is unclear whether the limitation following the term is or is not part of the claimed invention.
- In claim 10, line 5, "the axial direction of the support shaft" lacks proper antecedent basis.
- In claim 11, lines 2-3, "the aperture leaf" lacks proper antecedent basis insofar as it is unclear which of the plurality of aperture leaves is being referenced.
- In claim 11, line 5, "the aperture leaf" lacks proper antecedent basis insofar as it is unclear which of the plurality of aperture leaves is being referenced.
- In claim 12, line 3, the term "can" is indefinite insofar as it is unclear whether the limitation following the term is or is not part of the claimed invention.
- In claim 12, line 4, "the aperture leaf" lacks proper antecedent basis insofar as it is unclear which of the plurality of aperture leaves is being referenced.
- In claim 12, line 5, "the rolling element" lacks proper antecedent basis insofar as it is unclear which of the rolling elements is being referenced.
- In claim 13, lines 2-3, "the rolling element" lacks proper antecedent basis insofar as it is unclear which of the rolling elements is being referenced.
- In claim 14, line 2, "the adjacent rolling elements" lacks proper antecedent basis.
- In claim 14, line 2, "the aperture leaf" lacks proper antecedent basis insofar as it is unclear which of the plurality of aperture leaves is being referenced.
- In claim 15, line 2, "the holding portions" lacks proper antecedent basis.
- In claim 18, line 2, "the linear members" lacks proper antecedent basis.

- In claim 19, line 2, "the aperture leaf" lacks proper antecedent basis insofar as it is unclear which of the plurality of aperture leaves is being referenced.
- In claim 19, line 3, "the linear members" lacks proper antecedent basis.
- In claim 20, line 5, "the aperture leaf" lacks proper antecedent basis insofar as it is unclear which of the plurality of aperture leaves is being referenced.
- In claim 20, line 7, "the linear members" lacks proper antecedent basis.
- In claim 20, line 9, "the linear members" lacks proper antecedent basis.
- In claim 20, line 11, "the linear members" lacks proper antecedent basis.
- In claim 20, lines 12-13, "the linear members" lacks proper antecedent basis.
- In claim 21, lines 2-3, "the aperture leaf" lacks proper antecedent basis insofar as it is unclear which of the plurality of aperture leaves is being referenced.
- In claim 21, line 3, the term "can" is indefinite insofar as it is unclear whether the limitation following the term is or is not part of the claimed invention.
- In claim 22, "the aperture leaf" lacks proper antecedent basis insofar as it is unclear which of the plurality of aperture leaves is being referenced.
- Claims 2-5, 7, 8, 16, and 17 are rejected by virtue of their dependencies.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

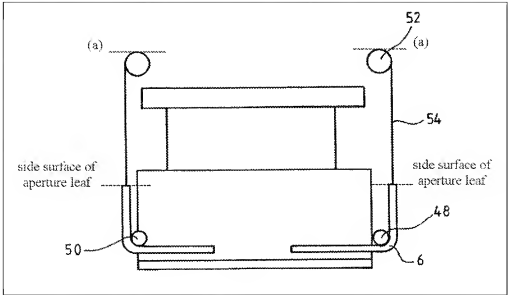
> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 8, 12, 13, 15, and 16-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Saladin et al. (US 2002/0126799).

- Regarding claim 1, Saladin et al. teaches an irradiation field limiting device which shields radiation from a radiation source (38) by driving a plurality of aperture leaves (4, 6, 8, 10), arranged in a thickness direction (see figs. 2 and 4), a specific amount to limit an irradiation field to a desired range (para 0013), the irradiation field limiting device comprising:

a flexible linear member (54) secured to a thick portion of the aperture leaf (fig. 4; para 0019, lines 16-17) and provided such that the linear member can be bent along a side surface of the aperture leaf (as the linear member 54 is wound onto the drum 52, examiner takes the position that at least at point (a), shown in 1st modified fig. 4 the linear member is being bent *along* the side surface of the aperture leaf) on a side of the radiation source (see figs. 2 and 4); and

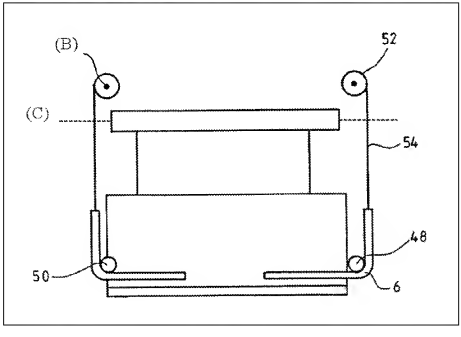
a driver section (para 0019, last sentence; para 0014, lines 6-10) which drives the linear member.



- 1st modified fig. 4 -

- Regarding claim 8, Saladin et al. teaches that the aperture leaf is rectangular (see figs. 1 and 4; para 0020, first sentence).
- Regarding claim 12, Saladin et al. teaches that the aperture leaves are arranged in a thickness direction (see figs. 2 and 4) so that the aperture leaves can freely move through rolling elements (48, 50), and wherein the side surface of the aperture leaf protrudes in the thickness direction to form a holding portion which holds the rolling element (see 1st modified fig. 4 above).
- Regarding claim 13, Saladin et al. teaches that the holding portion forms at least one of a straight line and a curve to hold the rolling element (see fig. 4).
- Regarding claim 15, Saladin et al. teaches that the holding portions are disposed at different positions with respect to the irradiation direction (as shown in fig. 4, the holding portions of aperture leaves 6 and 10 are disposed at a position higher than the holding portions of the aperture leaves 4 and 8 with respect to the irradiation direction), and are repeatedly disposed at an identical position in units of a specific number of the aperture leaves (as shown in fig. 4, the holding portions of the two aperture leaves 6 and 10 are at identical positions and the holding portions of the two aperture leaves 4 and 8 are at identical positions).
- Regarding claim 16, Saladin et al. teaches that the holding portion is a shielding portion (para 0013, lines 8-9) which prevents radiation from passing through a space between the aperture leaves adjacent to each other (see fig. 4).
- Regarding claim 17, Saladin et al. teaches a shielding portion (46) which shields radiation in an opening between the aperture leaves adjacent to each other (see figs. 3 and 4; para 0018).

- Regarding claim 18, Saladin et al. teaches that the linear members respectively secured to the aperture leaves adjacent in the thickness direction differ in axial direction (as shown in the 2nd modified fig. 4 below, the axial direction (B), perpendicular to the plane of the figure, of the linear members 54 of the aperture leaves 6 and 10 differ from the axial direction (C) of the linear members 54 of the aperture leaves 4 and 8. To further support this position, examiner would like to point to paragraph 0019, lines 17-18 which states, "… wires 54, which are secured to the shutters to be wound onto the drums").



- 2nd modified fig. 4 -

- Regarding claim 19, Saladin et al. teaches that the driver section drives the aperture leaf (para 0019, last sentence; para 0014, lines 6-10) of which the axial direction of the linear member is set to be identical in units of a specific number of the linear members (as shown in the 2nd modified fig. 4 above, the axial direction of the linear member 54 of aperture leaf 6 is

identical to the axial direction of the linear member 54 of aperture leaf 10; and the axial direction of the linear member 54 of aperture leaf 4 is identical to the axial direction of the aperture leaf 8).

- Regarding claim 20, Saladin et al. teaches an irradiation field limiting device which shields radiation from a radiation source (38) by driving a plurality of aperture leaves (4, 6, 8, 10), arranged in a thickness direction (see figs. 2 and 4), a specific amount to limit an irradiation field to a desired range (para 0013), the irradiation field limiting device comprising:

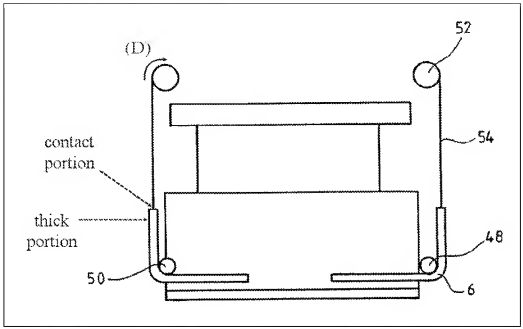
a flexible linear member (54) secured to a thick portion of the aperture leaf (fig. 4; para 0019, lines 16-17); and

a driver section (para 0019, last sentence; para 0014, lines 6-10) which drives the linear member;

wherein the linear members respectively secured to the aperture leaves adjacent in the thickness direction differ in axial direction (as shown in the 2nd modified fig. 4 below, the axial direction (B), perpendicular to the plane of the figure, of the linear members 54 of the aperture leaves 6 and 10 differ from the axial direction (C) of the linear members 54 of the aperture leaves 4 and 8. To further support this position, examiner would like to point to paragraph 0019, lines 17-18 which states, "... wires 54, which are secured to the shutters to be wound onto the drums") and are identical in axial direction in units of a specific number of the linear members (as shown in the 2nd modified fig. 4 above, the axial direction of the linear member 54 of aperture leaf 6 is identical to the axial direction of the linear member 54 of aperture leaf 10; and the axial direction of the linear member 54 of aperture leaf 4 is identical to the axial direction of the aperture leaf 8); and

wherein the irradiation field limiting device includes a plurality of driver units (para 0019, last sentence; para 0014, lines 6-10) each of which includes a plurality of the driver sections (para 0019, last sentence; para 0014, lines 6-10) which respectively drive the linear members of which the axial directions are set to be identical in units of a specific number of the linear members (see 2nd modified fig. 4 above; paras 0014 and 0019).

- Regarding claim 21, Saladin et al. teaches a linear member holding portion (52) which holds the linear member between the aperture leaf and the driver section (para 0019, last sentence; para 0014, lines 6-10) so that the linear member can move in the axial direction (along the vertical lengths of the linear members 54 shown in fig. 4) to prevent the linear member from buckling (the tension created in the linear member as a result of being wound onto the drum 52 prevents buckling of the linear member; para 0019).
- Regarding claim 22, Saladin et al. teaches that the linear member drives the aperture leaf while contacting the thick portion (fig. 4; para 0019, lines 16-17; see 3rd modified fig. 4 below), is preliminarily bent in a direction away from a contact portion between the linear member and the thick portion (see 3rd modified fig. 4 below), and presses a portion (52) in contact with the thick portion (via the linear member 54) so that the linear member is prevented from buckling (the tension created in the linear member as a result of being wound onto the drum 52 prevents buckling of the linear member; para 0019).



- 3rd modified fig. 4 -

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saladin et al. (US 2002/0126799) as applied to claim 1 above.

- Regarding claim 9, Saladin et al. teaches a device as recited above. Saladin et al. further teaches that the linear member is a continuous wire (para 0019, line 16-18).

However, Saladin et al. fails to teach that the wire is metal.

Metal wires are notoriously known in the art and are routinely used by skilled artisans due to their durability. Further, applicant has not stated that any long standing or stated problem in the art is solved by using a wire that is metal.

Therefore, absent any showing of criticality, it would have been an obvious matter of design choice to one having ordinary skill in the art at the time of the invention to modify the device of Saladin et al. to employ a metal wire since one would have been motivated to provide a more durable wire.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saladin et al. (US 2002/0126799) as applied to claim 12 above, and further in view of Miyano (JP 07-204284 A).

- Regarding claim 14, Saladin et al. teaches a device as recited above. Saladin et al. further teaches that the rolling element (48, 50) provided on an inner side of the aperture leaf is disposed at a position close to the radiation source (see figs. 2 and 4).

However, Saladin et al. fails to teach that another rolling element is provided on an outer side of the aperture leaf disposed at a position away from the radiation source.

Miyano teaches an irradiation field limiting device that comprises both a rolling element (13) provided on an inner side of an aperture leaf (31) that is disposed at a position close to the radiation source (1) as well as another rolling element (13) provided on an outer side of the aperture leaf that is disposed at a position away from the radiation source (see fig. 1)

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the device of Saladin et al. as suggested by Miyano since one would have been motivated to make such a modification to provide better support for the aperture leaves, thereby improving the overall stability of the device.

Allowable Subject Matter

8. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

- Regarding claim 2, the prior art fails to teach or fairly suggest an irradiation limiting device wherein the driver section includes a base, a drive shaft connected with a driving source through a connection portion and inserted into the base, and a slider which moves along an axial direction of the drive shaft accompanying rotation of the drive shaft and is connected with the linear member, in combination with all the other limitations of the claim.
- Claims 3-11 contain allowable subject matter by virtue of their dependencies.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONA M. SANEI whose telephone number is (571)272-8657. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mona M Sanei/
Examiner, Art Unit 2882

/Hoon Song/
Primary Examiner, Art Unit 2882